PARAMETER

I.

1. Intrinsic Permeability
2. Porosity and Effective Porosity
3. Capillary Characteristics
4. Dry Bulk Density
5. Grain Density
6. Relative Permeability
7. Grain Size Distribution
8. Total Organic Carbon
9. Matrix compressibility
10. Soil/aquifer heat capacity

II.

1. Density of phase (l).
2. Dynamic viscosity (l).
3. Fluid compressibility (l)
4. Interfacial Fluid Tensions
5. Residual Fluid Saturation
6. Wettability

III.

1. Longitudinal Dispersivity
2. Transverse Dispersivity
3. Tortuosity
4. Tortuosity Exponent
5. Molecular Diffusion
6. First Order Decay
7. Soil Dist. Coefficient
8. Henry's Coefficient
9. Raoult's Coefficient
10. Solubility Coefficient

IV.

1. Hydrostratigraphy
2. Depth to Ground Water
3. Ground Water Gradient
4. Local Recharge Areas
5. Local Discharge Areas
6. Plume Distribution
7. Release rates & character

V.

1. Site Configuration
2. Distance to Receptors
3. Nearest Surface Water
4. Nearest Environmental Impact
5. Climatic Variables

* Sensitivity Scale: 1) Low; 2) Linear/medium; 3) High/exponential
Parameter sensitivity can vary depending on site specific conditions. For instance, at a site with multiple releases of multiple fuels over time, generally linear aspects like viscosity can acquire greater importance. In general, multiphase sensitivities are greater than for single phase flow (e.g., groundwater only).

RECOMMENDED SOURCES OF DATA	Typical Sensitivity*
Lithologic Parameters	
Site specific, interpolated as necessary from pump tests, etc.	2
Site specific, may be estimated from grain size or apertures with uncertainty	2
Site specific, may be estimated from grain size dist. data, but with uncertainty.	3
Site specific, or conservatively estimated from literature.	1
Site specific, but easily estimated from literature.	1
Generally estimated via saturation/pressure function or lab/field testing.	3
Site specific, interpretive assist for perm & porosity	2
Site specific, or scale according to apparent dispersion	2
Site specific or literature values.	1
Derived from transient temperature data or from lab bench scale tests.	1
Fluid Properties	
Site specific or standard conditions from literature.	2
Site specific or standard conditions from literature.	2
Site specific or standard conditions from literature.	1
Site specific or standard conditions from literature.	3
Estimated from site capillary characteristic data or lab tests at PTS.	3
Petrophysical fluid testing, or assume initially water wet (common)	2
Chemical Transport Properties	
Site specific if possible, difficult to measure and scale dependent.	2
Site specific if possible, difficult to measure and scale dependent.	2
Literature value, set to θ1/3 if the Millington-Quirk function is used.	2
Literature value, set to 10/3 if the Millington-Quirk function is used.	3
Literature value for free liquid standard state.	1
Site specific testing or literature analogy; electron acceptors & plume distribution.	2
Estimate from organic carbon content and empirical formulae.	2
Literature value.	2
Site conditions and specific standard state literature values.	2
Site conditions and specific standard state literature values.	2
Hydrogeologic and Subsurface Conditions	
Site specific from geologic logs and grain size data.	3
Site specific or interpolated from nearby locations.	2
Site specific or interpolated from nearby locations, or inferred.	2
Locality specific and inferred from published data and topography.	2
Locality specific and inferred from published data and topography.	2
Site specific from soil sample analyses, interpolated as required.	2
Site specific if known, or assume engineering based ranges	3
Surface Conditions & Distributions	
Site specific from prior and existing conditions.	2
Locality specific.	2
Locality specific.	2
Locality specific.	2
Locality specific, published climate resources.	1